SYSTEM AND METHOD FOR PROVIDING A
DATA WAREHOUSE IN ACCORDANCE
WITH A VIRTUAL SCHEMA
Inventors: Li-Wen Chen, et al.
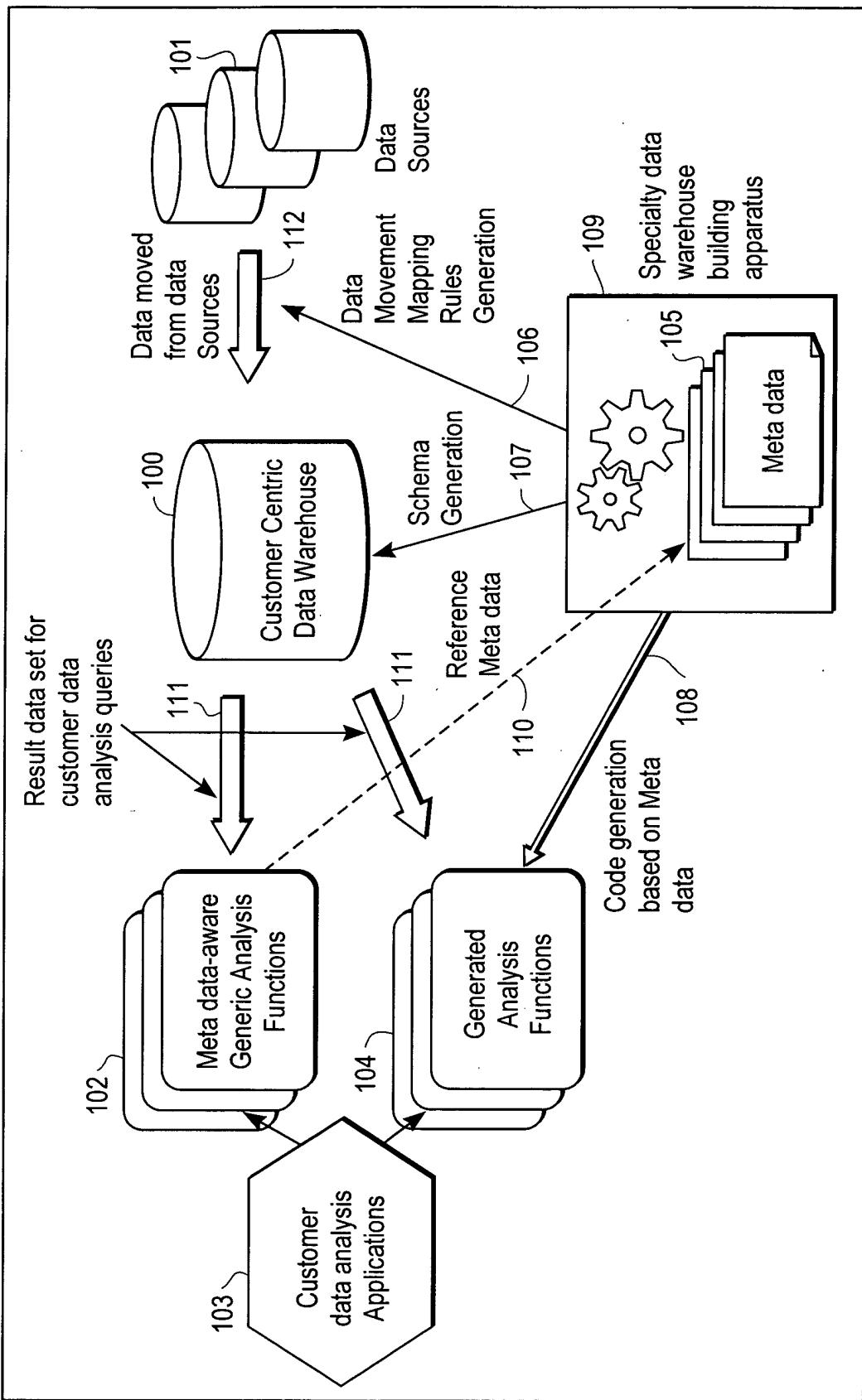Serial No.: 10/001,644

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FIG. 1

SYSTEM AND METHOD FOR PROVIDING A
DATA WAREHOUSE IN ACCORDANCE
WITH A VIRTUAL SCHEMA
Inventors: Li-Wen Chen, et al.
Serial No.: 10/001,644

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FIG. 2

SYSTEM AND METHOD FOR PROVIDING A
DATA WAREHOUSE IN ACCORDANCE
WITH A VIRTUAL SCHEMA
Inventors: Li-Wen Chen, et al.
Serial No.: 10/001,644

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204
BUSINESS
OPERATION
GROUP

202
Dimension
Lookup
Components

201
Dimension
Component

202
Dimension
Lookup
Components

201
Dimension
Component

200
Fact
Fact
Fact
Component

203
BUSINESS MEASURE
GROUP
Aggregated business
performance measures
of business operations

201
Dimension
Component

202
Dimension
Lookup
Components

201
Dimension
Component

202
Dimension
Lookup
Components

BUSINESS
OPERATION GROUP
Information
represent the business
processes or operations
to characterize the
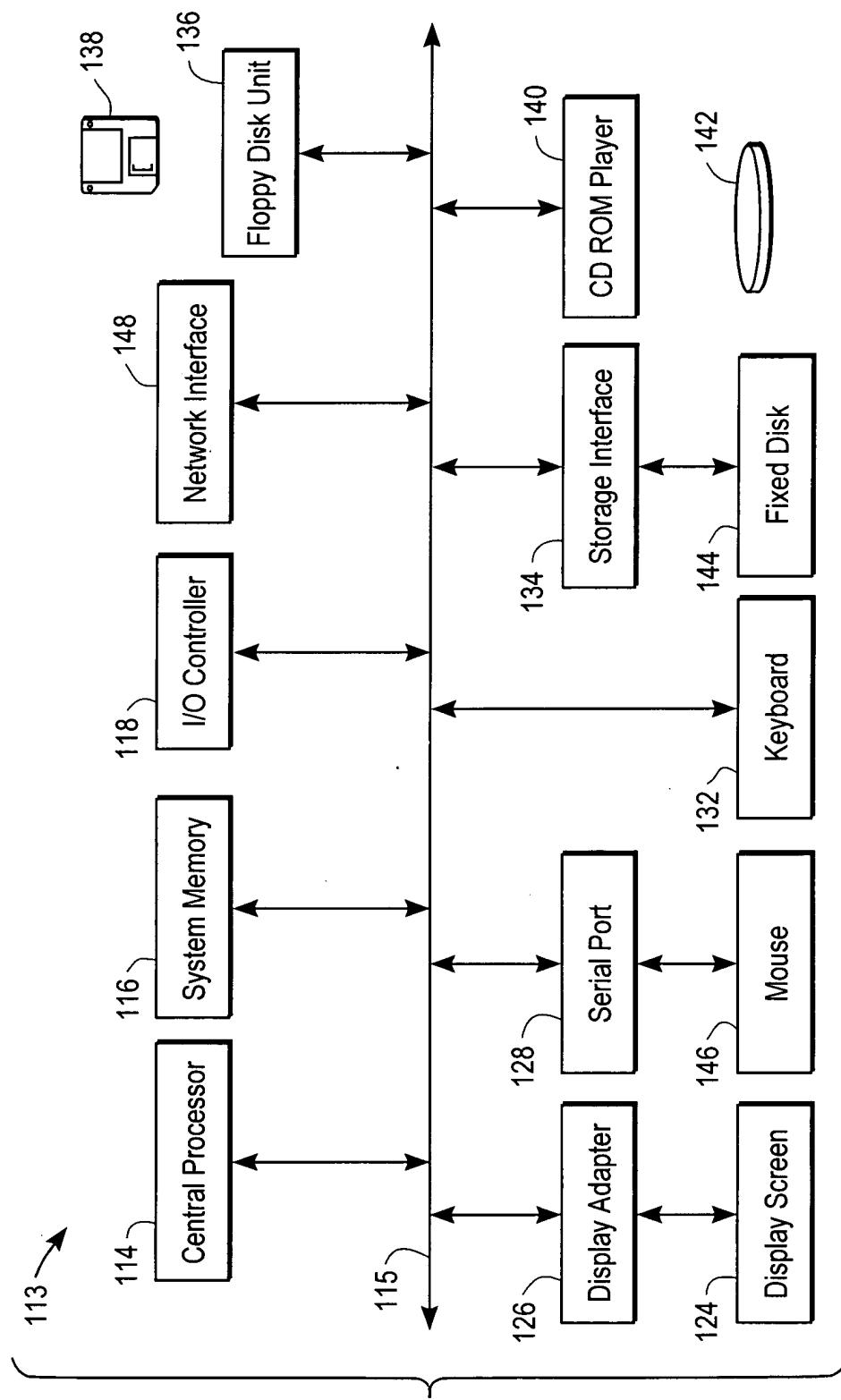business measures in the
BUSINESS MEASURE
GROUP

204

FIG. 3A

SYSTEM AND METHOD FOR PROVIDING A
DATA WAREHOUSE IN ACCORDAN
WITH A VIRTUAL SCHEMA
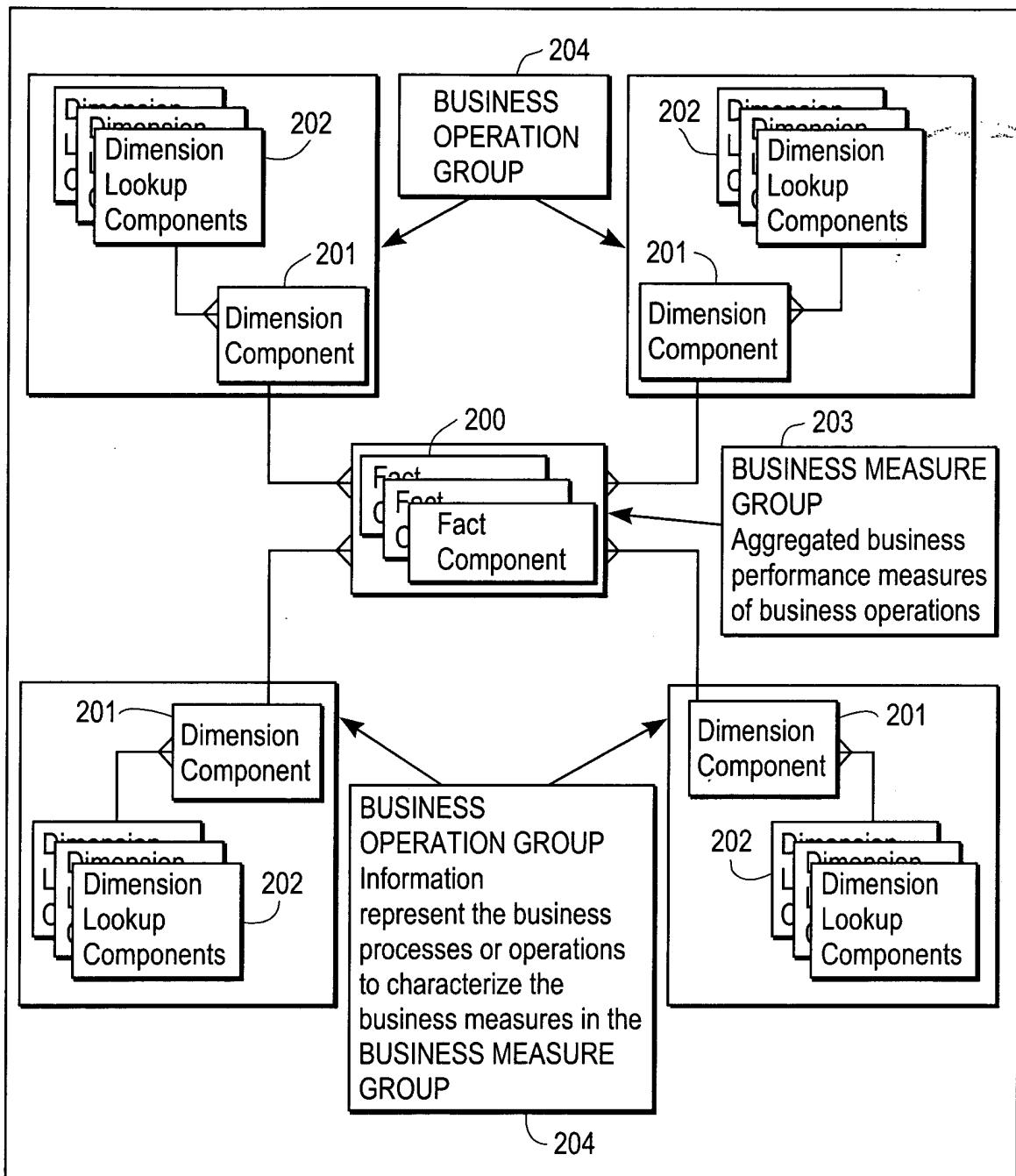Inventors: Li-Wen Chen, et al.
Serial No.: 10/001,644

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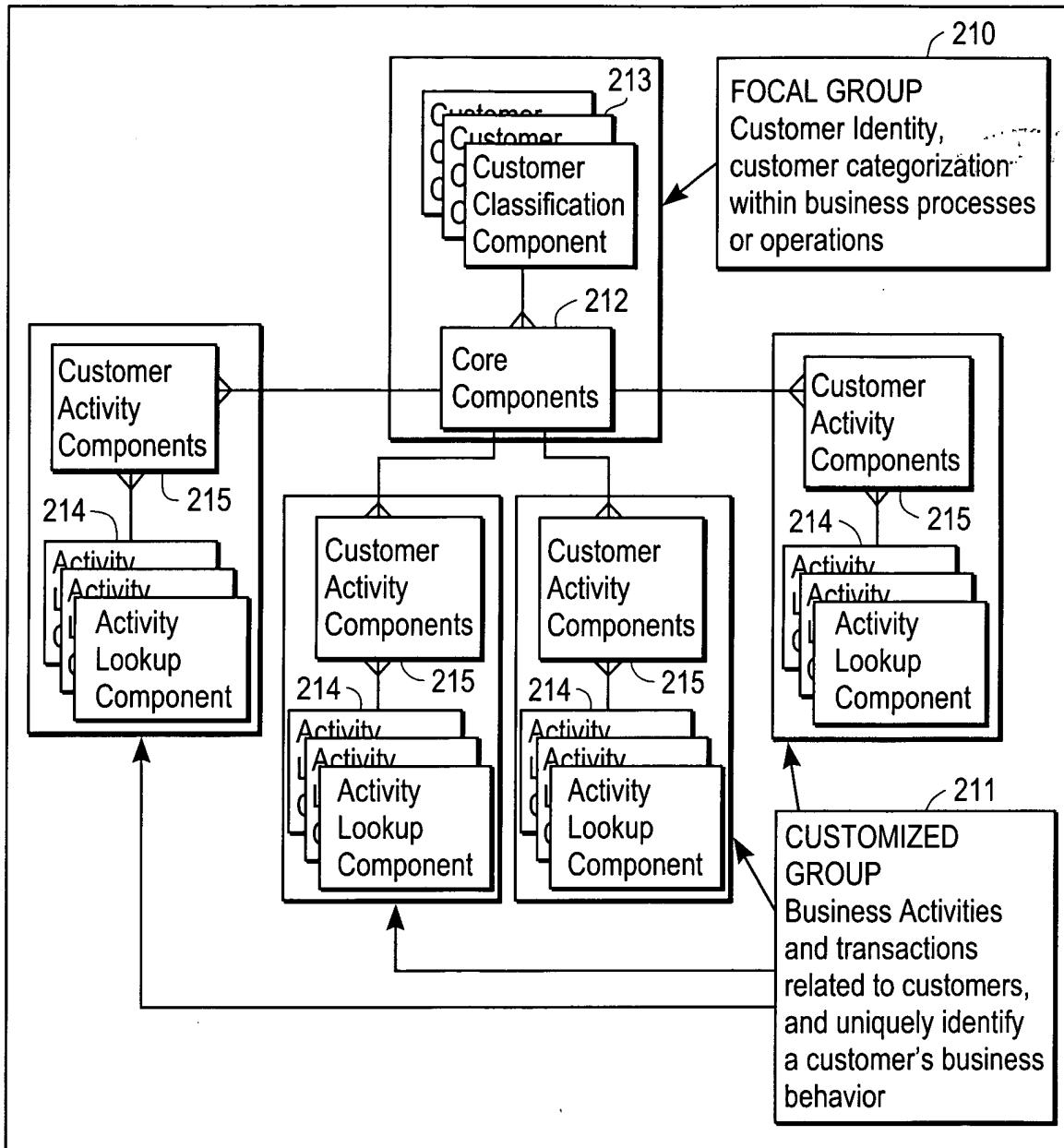FIG. 3B

SYSTEM AND METHOD FOR PROVIDING
DATA WAREHOUSE IN ACCORDANCE
WITH A VIRTUAL SCHEMA
Inventors: Li-Wen Chen, et al.
Serial No.: 10/001,644

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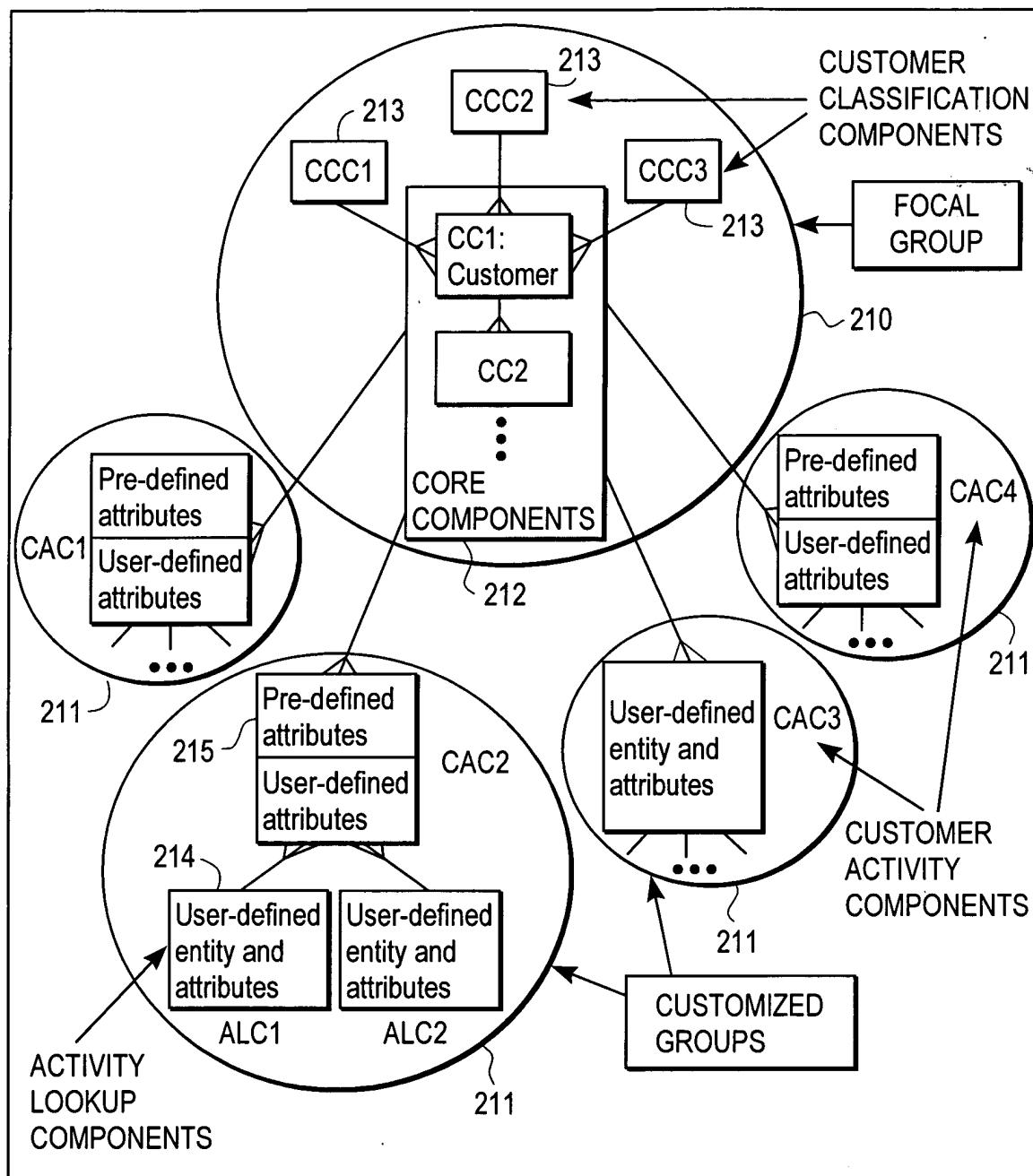FIG. 4A

SYSTEM AND METHOD FOR PROVIDING A
DATA WAREHOUSE IN ACCORDANCE
WITH A VIRTUAL SCHEMA
Inventors: Li-Wen Chen, et al.
Serial No.: 10/001,644

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219

Demographics 226

Demographic key

Age group
Birth date
Segmentation code
Educational level
Ethnic code
Gender, etc...

223

Customer 220

Customer key

Name
SSN
Customer type
Other attributes

221 227

Customer Profile

Customer history key

Subscription date
Tenure
Bad debt
Purchase amount/month
Etc...

225

224

Sales Channel 228

Channel key

Sales office
Sales agent
• • •

229

Account

Account key

Account type
Billing cycle
Other
attributes
• • •

222

Region 230

Region key

Address
Zip code
State
Etc...

**Billing
Transactions**

Transaction Key

Billing type
Billing date
Billing amount
• • •

232

**Purchase/Return
Transactions**

Transaction key

Transaction type
Transaction date
Product key
Predefined/user
defined attributes
• • •

234

**Sales
Activities** 240

Activity key

Activity type
Activity date
Predefined/user
defined
attributes...

Promotions

Promotion key

Promotion type
Promotion date
Media
Budget, etc...

242

**User Defined
Events/Tx**

User defined
key

User defined
type
attributes...

238

Products 244

Product key

Product name
Other product
attributes
• • •

Service Events

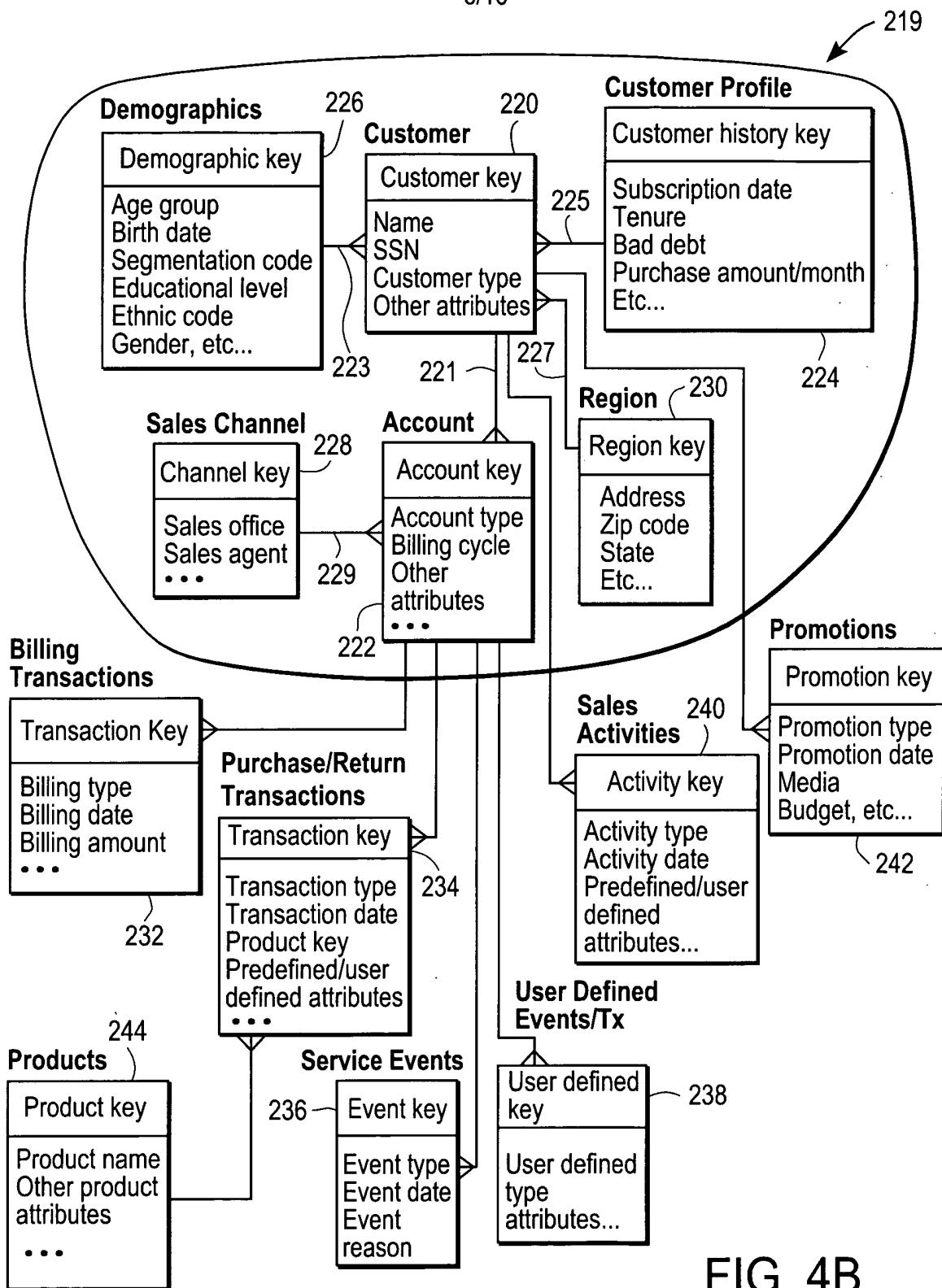236 Event key

Event type
Event date
Event
reason

FIG. 4B

SYSTEM AND METHOD FOR PROVIDING A
DATA WAREHOUSE IN ACCORDANCE
WITH A VIRTUAL SCHEMA
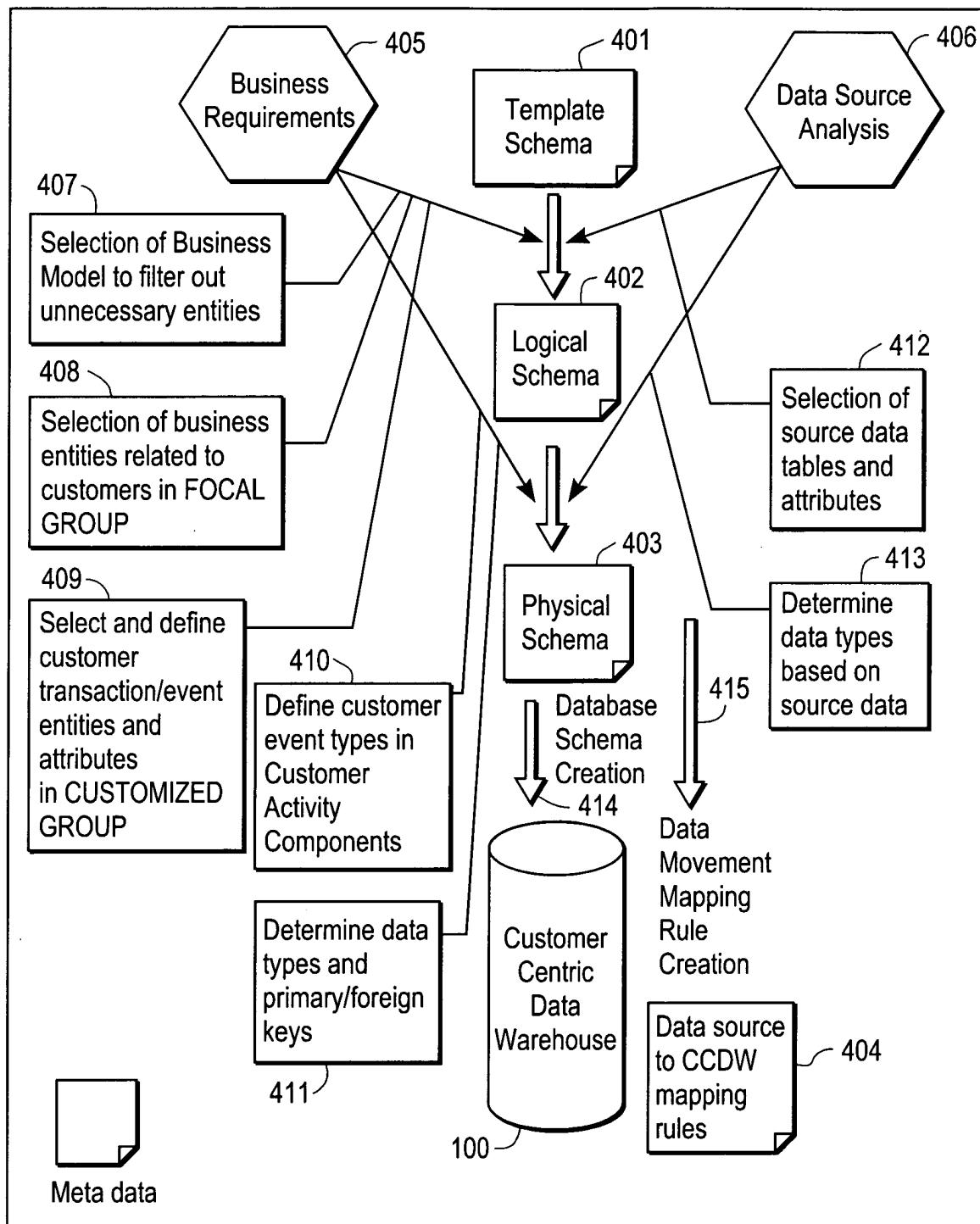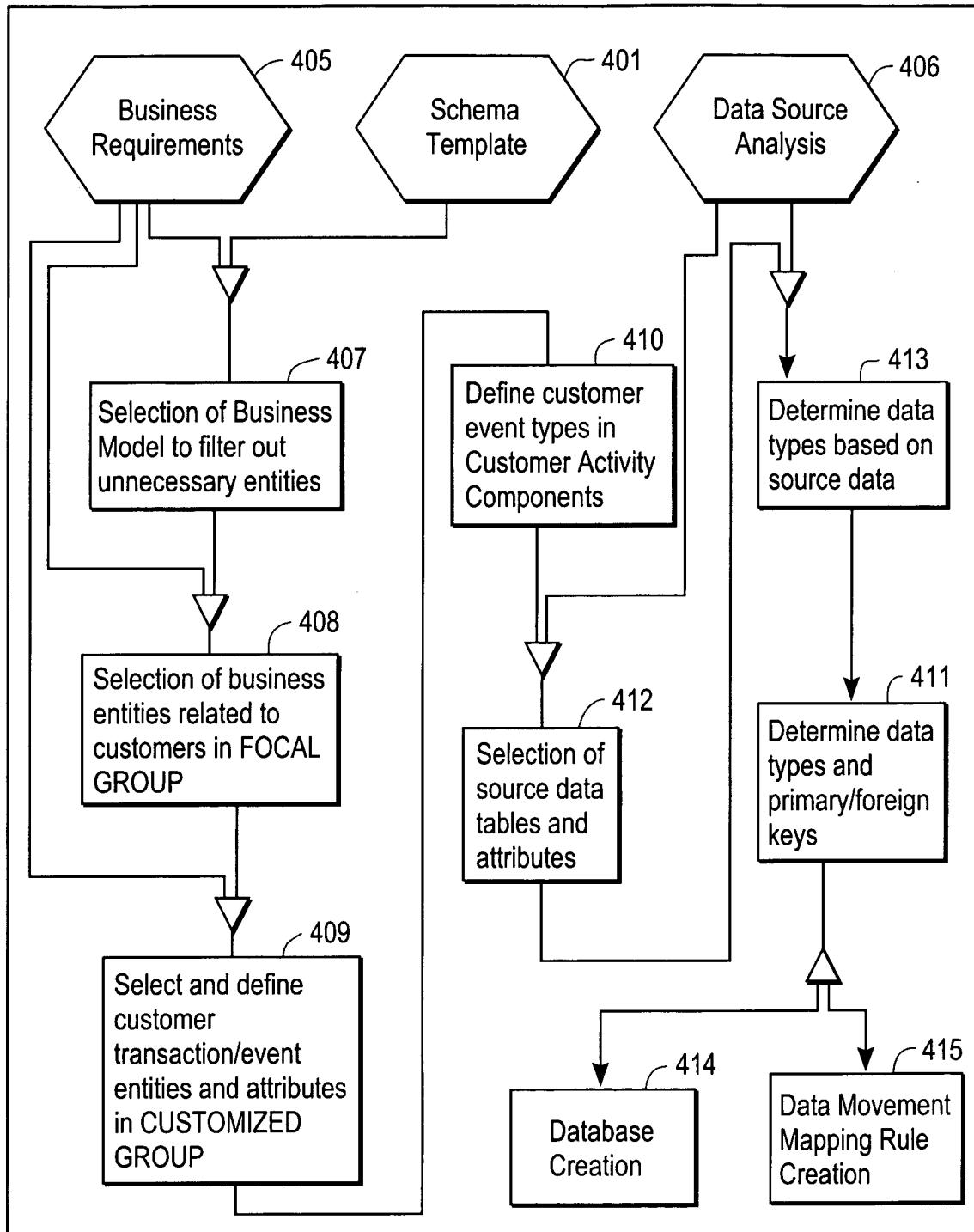Inventors: Li-Wen Chen, et al.
Serial No.: 10/001,644

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FIG. 5A

SYSTEM AND METHOD FOR PROVIDING A
DATA WAREHOUSE IN ACCORDANCE
WITH A VIRTUAL SCHEMA
Inventors: Li-Wen Chen, et al.
Serial No.: 10/001,644

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FIG. 5B

SYSTEM AND METHOD FOR PROVIDING A
DATA WAREHOUSE IN ACCORDANCE
WITH A VIRTUAL SCHEMA
Inventors: Li-Wen Chen, et al.
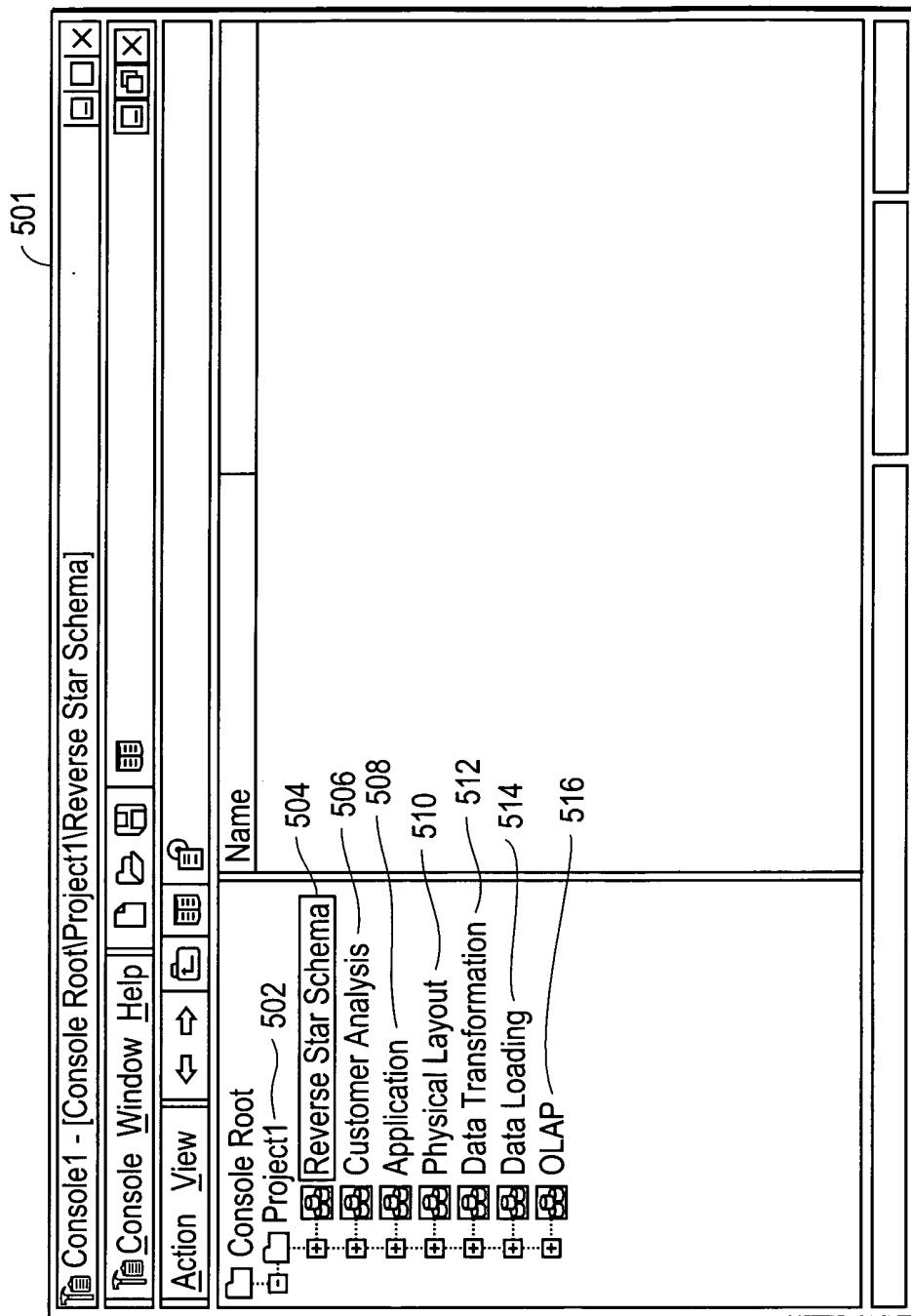Serial No.: 10/001,644
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501

Console1 - [Console Root\Project1\Reverse Star Schema]

Console Window Help

Action View

Console Root
Project1 —— 502
Reverse Star Schema
Customer Analysis
Application
Physical Layout
Data Transformation
Data Loading
OLAP

Name

504
506
508
510
512
514
516

FIG. 6A

SYSTEM AND METHOD FOR PROVIDING A
DATA WAREHOUSE IN ACCORDANCE
WITH A VIRTUAL SCHEMA
Inventors: Li-Wen Chen, et al.
Serial No.: 10/001,644

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503

Business model:

Telecommunication ▼ — 520

| Telecommunication |
| Retail |
| Banking |

Business characteristics:

522 — ☐ account based

☐ product based   — 522
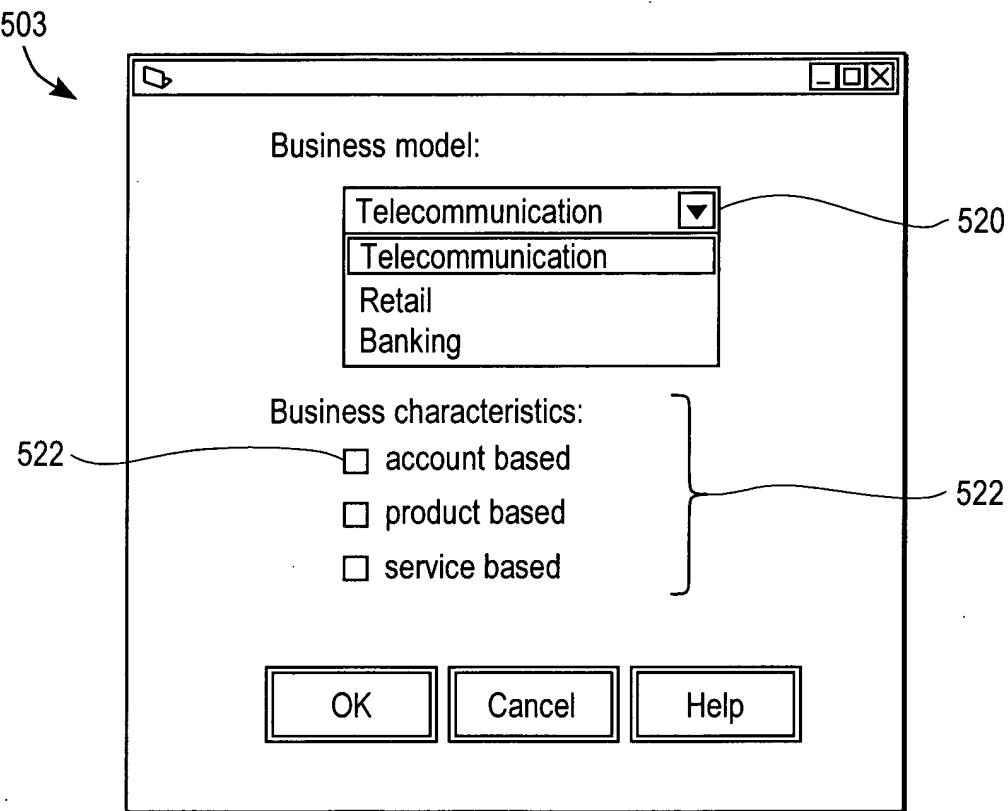
☐ service based

| OK | Cancel | Help |

FIG. 6B

SYSTEM AND METHOD FOR PROVIDING A
DATA WAREHOUSE IN ACCORDANCE
WITH A VIRTUAL SCHEMA
Inventors: Li-Wen Chen, et al.
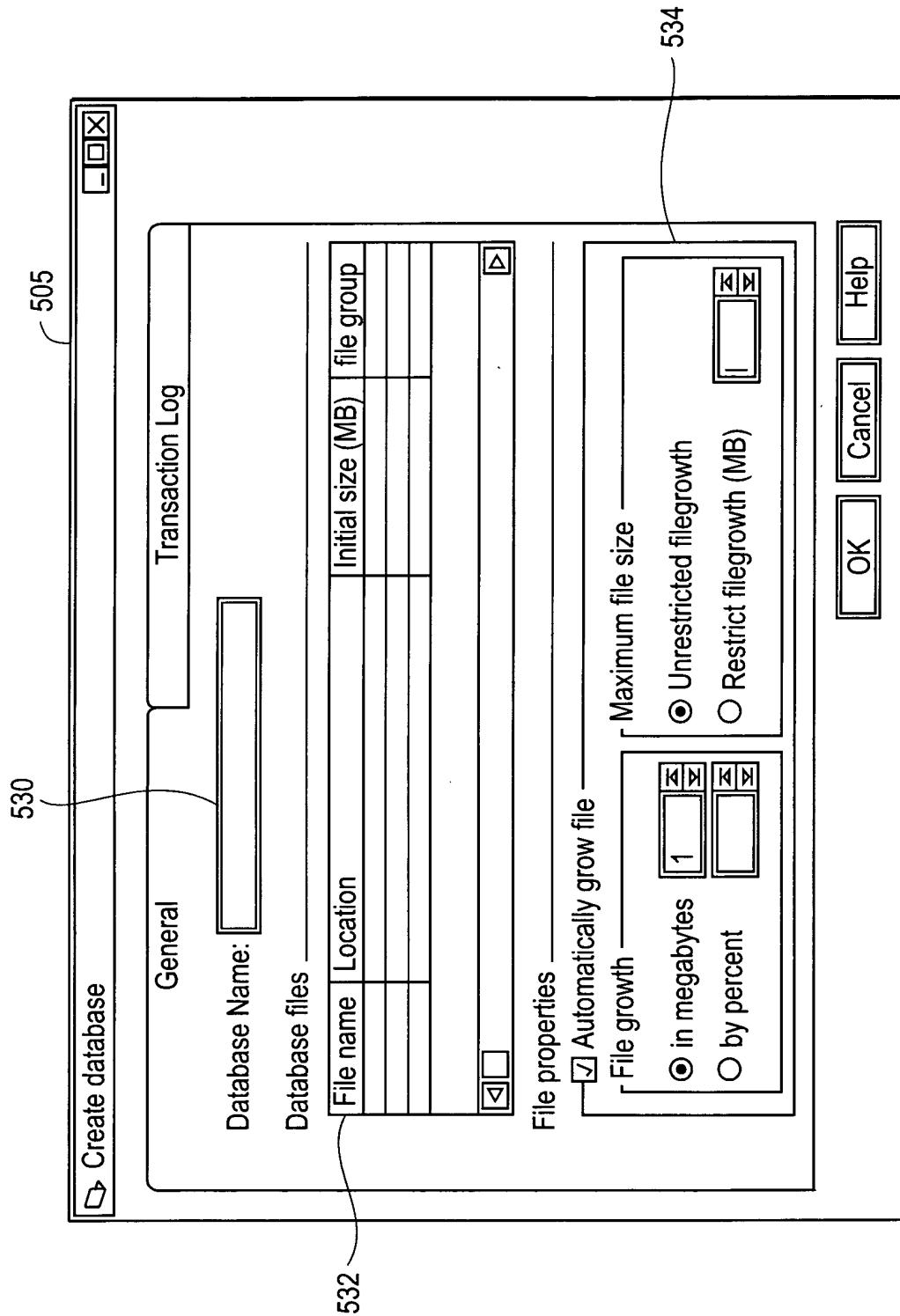Serial No.: 10/001,644

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Create database

General | Transaction Log

Database Name: [   ]

Database files

File name	Location	Initial size (MB)	file group

File properties

☑ Automatically grow file

File growth
- ⊙ in megabytes [1]
- ○ by percent

Maximum file size
- ⊙ Unrestricted filegrowth
- ○ Restrict filegrowth (MB)

[OK] [Cancel] [Help]

505
530
532
534

FIG. 6C

SYSTEM AND METHOD FOR PROVIDII●
DATA WAREHOUSE IN ACCORDANC●
WITH A VIRTUAL SCHEMA
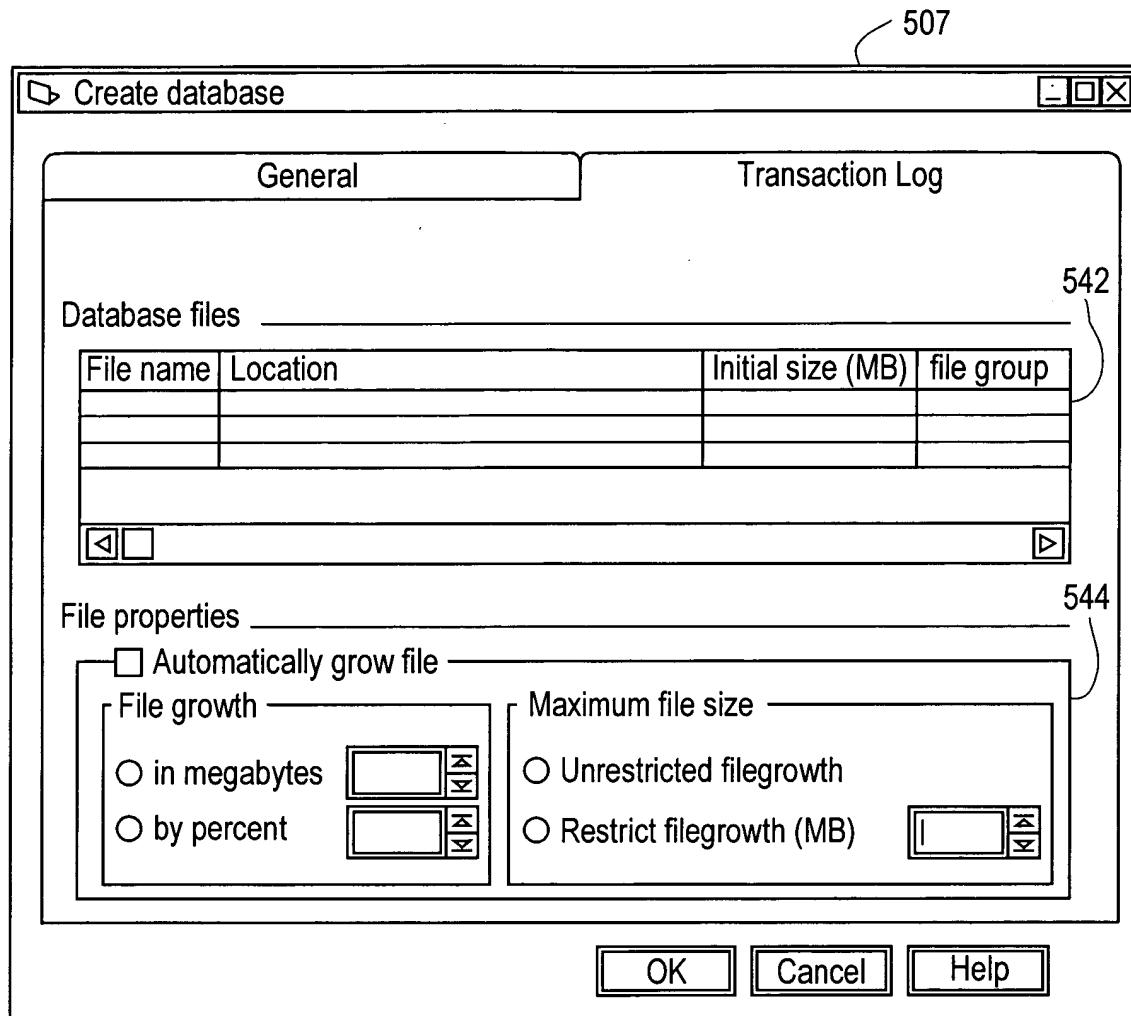Inventors: Li-Wen Chen, et al.
Serial No.: 10/001,644

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507

Create database

	General	Transaction Log	

542

Database files

File name	Location	Initial size (MB)	file group

File properties 544

☐ Automatically grow file

File growth

○ in megabytes [   ]

○ by percent [   ]

Maximum file size

○ Unrestricted filegrowth

○ Restrict filegrowth (MB) [   ]

[OK] [Cancel] [Help]

FIG. 6D

SYSTEM AND METHOD FOR PROVIDING A
DATA WAREHOUSE IN ACCORDANCE
WITH A VIRTUAL SCHEMA
Inventors: Li-Wen Chen, et al.
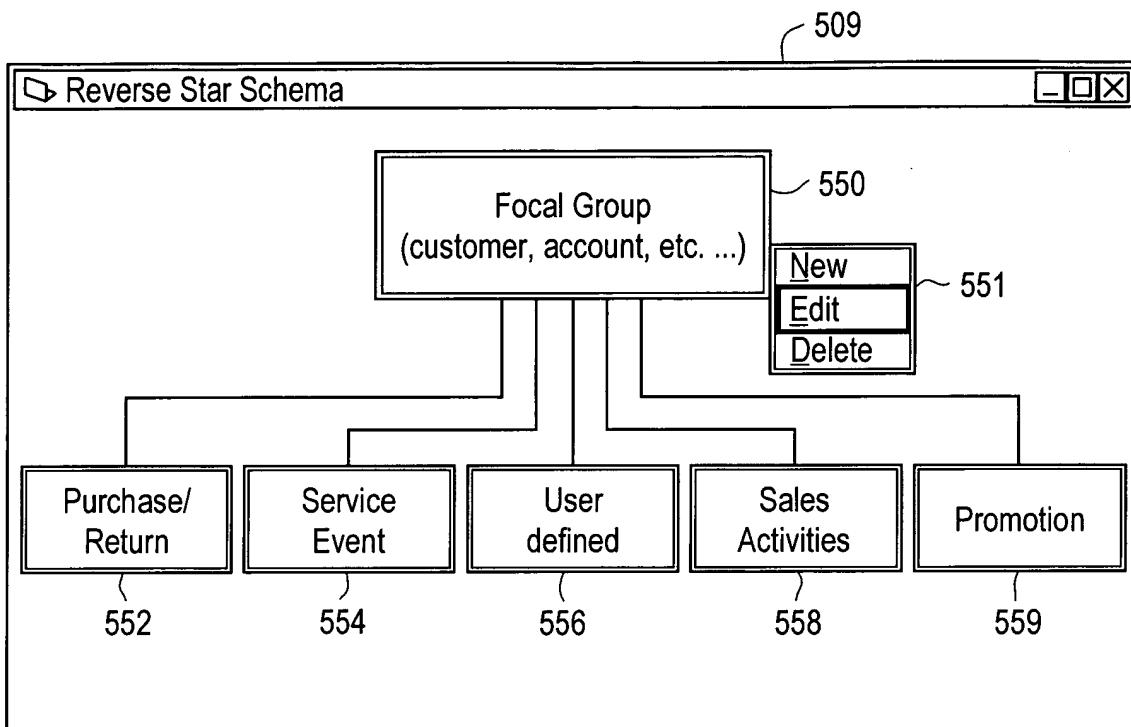Serial No.: 10/001,644

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FIG. 6E

SYSTEM AND METHOD FOR PROVIDING A
DATA WAREHOUSE IN ACCORDANCE
WITH A VIRTUAL SCHEMA
Inventors: Li-Wen Chen, et al.
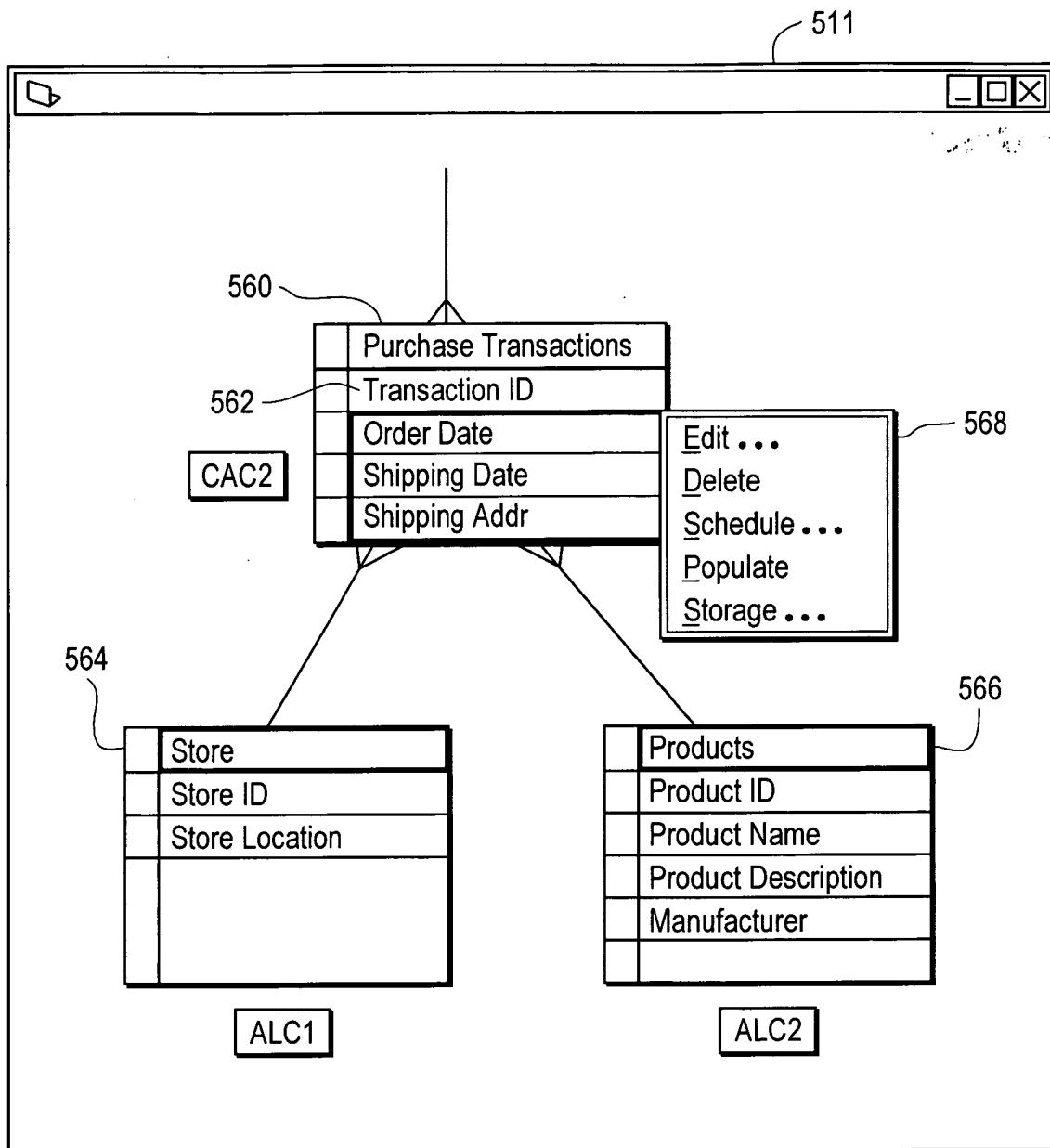Serial No.: 10/001,644

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FIG. 6F

SYSTEM AND METHOD FOR PROVIDING A
DATA WAREHOUSE IN ACCORDANCE
WITH A VIRTUAL SCHEMA
Inventors: Li-Wen Chen, et al.
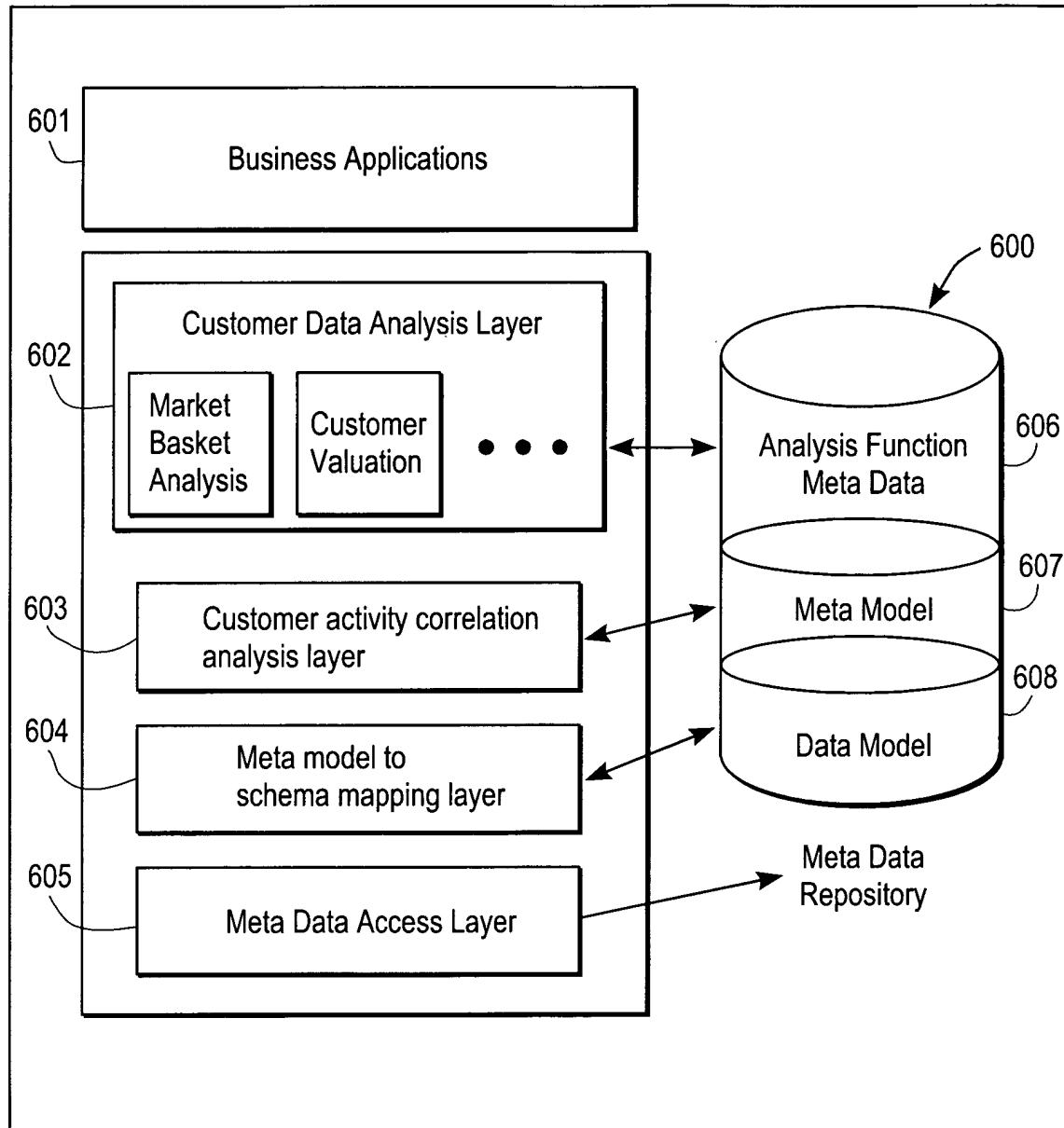Serial No.: 10/001,644

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FIG. 7A

SYSTEM AND METHOD FOR PROVIDING A
DATA WAREHOUSE IN ACCORDANC[E]
WITH A VIRTUAL SCHEMA
Inventors: Li-Wen Chen, et al.
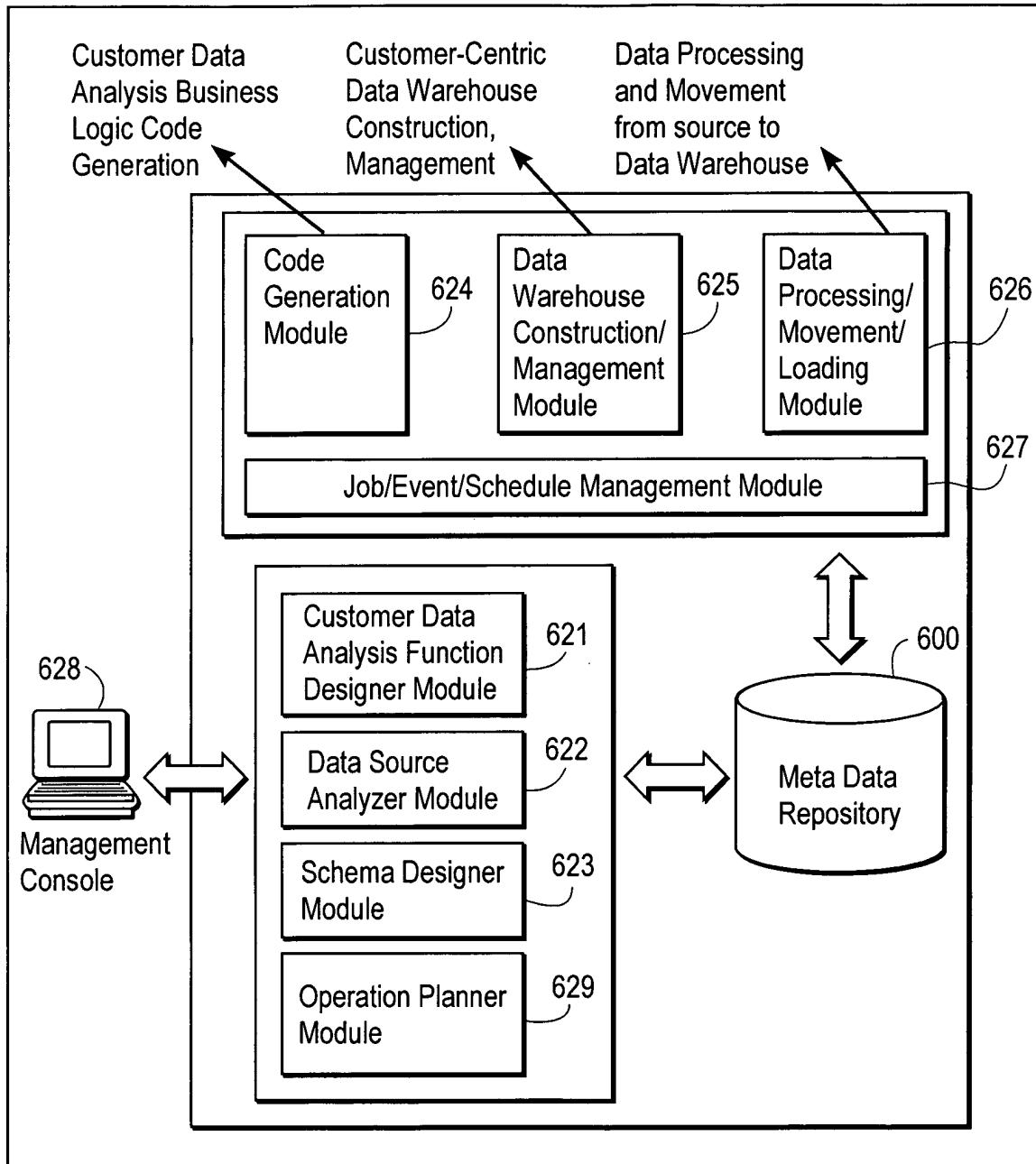Serial No.: 10/001,644

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Customer Data Analysis Business Logic Code Generation

Customer-Centric Data Warehouse Construction, Management

Data Processing and Movement from source to Data Warehouse

Code Generation Module — 624

Data Warehouse Construction/ Management Module — 625

Data Processing/ Movement/ Loading Module — 626

Job/Event/Schedule Management Module — 627

Customer Data Analysis Function Designer Module — 621

Data Source Analyzer Module — 622

Schema Designer Module — 623

Operation Planner Module — 629

Management Console — 628

Meta Data Repository — 600

FIG. 7B